Mar. 6, 1923.

1,447,280

C. B. CORCORAN

TYPEWRITING MACHINE

Filed Apr. 15, 1920

2 sheets-sheet 1

Fig. 1.

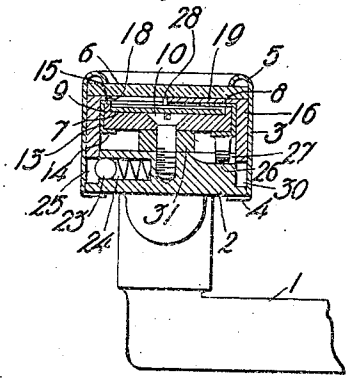


Fig. 2.

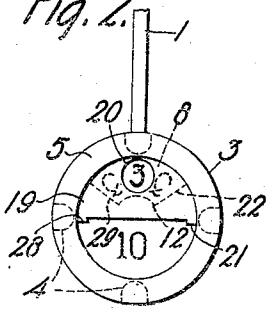


Fig. 3.

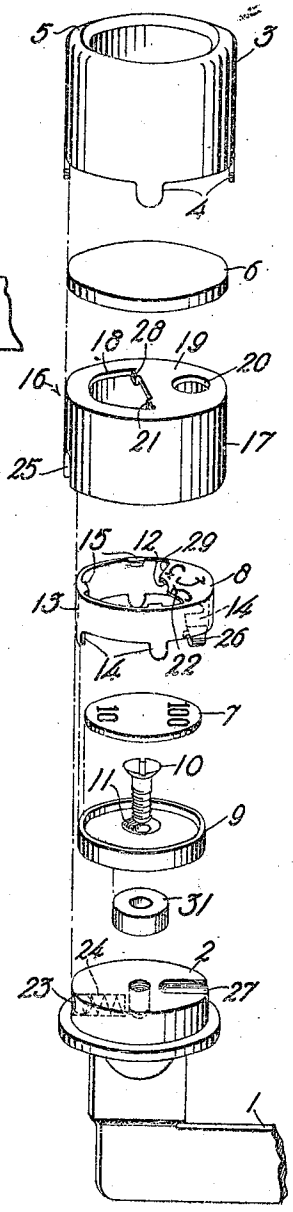


Fig. 4.

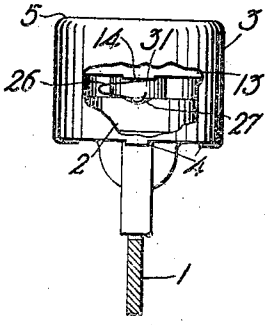
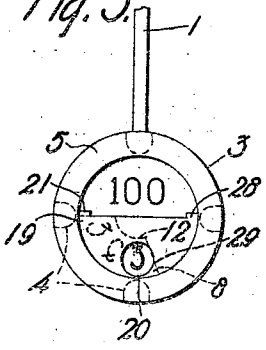


Fig. 5.



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Mar. 6, 1923.

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TYPEWRITING MACHINE

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2 sheets-sheet 2

Fig. 6.

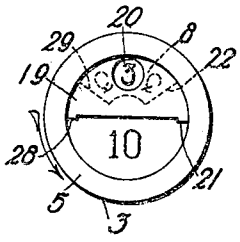


Fig. 7.

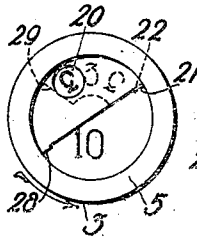


Fig. 8.

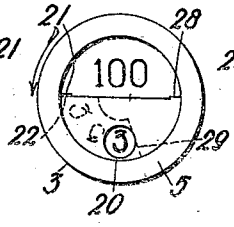


Fig. 9.

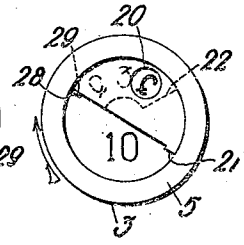


Fig. 10.

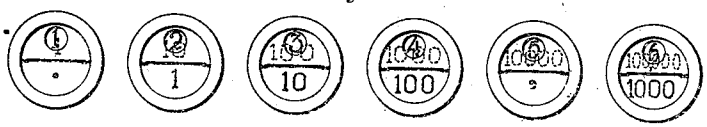
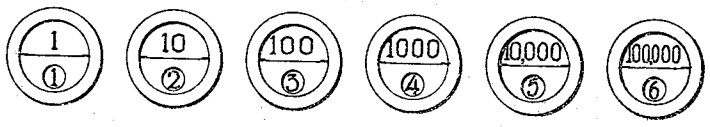


Fig. 11.



Inventor:
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Patented Mar. 6, 1923. 1,447,280

UNITED STATES PATENT OFFICE.

CORNELIUS B. CORCORAN, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed April 15, 1920. Serial No. 374,064.

To all whom it may concern:

Be it known that I, CORNELIUS B. CORCORAN, a citizen of the United States, residing in borough of the Bronx, in the county of the Bronx, city and State of New York, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to key-tops, and is herein disclosed as applied to the tabulating keys of one form of the Underwood standard typewriting machine.

In such machines, it is sometimes desired that a single set of tabulating keys may be used at will for column-selecting or for decimal tabulating, and since it is sometimes desired to use the keys in decimal tabulating for pointing off in dollars and cents, and at other times to use them in pointing off for ordinary numerical work, it is advantageous to have two sets of decimal designations on said keys adapted to be used at will according to the kind of work in hand.

According to the present invention, the keys may have rotatable key-tops which are adapted to always indicate the corresponding columns when used for column-selecting, but which may be rotated to occupy either of two positions, so that the designations or legends appearing on the keys will correspond to the kind of work in hand, that is, correspond either to pointing off in dollars and cents, or to pointing off in ordinary numerical work, as the case may be.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a sectional side view of a key-top embodying the present invention.

Figure 2 is a plan view of the top of the "3" column key as set for work including dollars and cents.

Figure 3 is a spread perspective view of the parts of the key-top shown in Figures 1 and 2.

Figure 4 is an end view of the key-top seen in Figure 1, but viewed from the rear, and with parts broken away.

Figure 5 is a view similar to Figure 2, but showing the key-top rotated to display the legends for typewriting in ordinary numerical work.

Figures 6, 7, and 8 are plan views of the key-top shown in Figure 2, showing the successive positions of the legend obscuring shield as the key-top is rotated.

Figure 9 is a plan view, showing the same key-top when rotated to return to the Figure 6 position.

Figure 10 is a plan view of the key-tops when set for work in dollars and cents.

Figure 11 is a similar view, but showing the key-tops rotated when the machine is used for writing in ordinary numerical work.

The tabulating key-lever 1 has fast to it, in any usual or desired manner, a key-top base or body 2 on which revolves a key-cap 3 having turned-in lower lugs 4, which underlie the base 2, and a turned-over top margin 5 which overlies the edge of a glass cap 6, through which legends on a sheet or plate 7 or on a secondary shield 8 may be viewed. The sheet 7 is usually glued or cemented to the bottom of a shallow cup 9, and this cup, according to the present invention, is held to the base 2 by a screw 10 threaded into the base and passing through an opening 11 in the cup 9. The secondary shield 8 is provided with an inturned lip or shutter 12, which is adapted to overlie either the upper legend 100 or the lower legend 10 on the sheet 7, and for this purpose the secondary shield is adapted to be rotated upon the cup 9, which it embraces by its cylindrical body 13, and to which it is held by turned-up bottom lugs 14, which underlie the cup.

In order to hold the secondary shield 8 in position upon the cup 9, it is also provided with short overlying lugs 15, which project inwardly from widely spaced points along its circumference. The secondary shield 8 is completely enclosed within a primary shield 16 having a cylindrical body 17, and an annular rim 18, which spreads out on one side at 19 to form a broad lip or shutter covering the lip 12 of the secondary shield 8 but having a limited motion relative thereto. This motion is a limited lost-motion to enable an opening 20 in the lip 19, which may be circular, to automatically display either of the three digits "3," which appear as legends or denominations upon the lip 12. The central digit "3," just referred to, appears when the shield 16 is in its Figure 2 position, and the other digits "3" are then obscured, because they lie out-

side the margins of the opening 20 but beneath the lip 19. When it is desired to use the tabulating device embodying the key illustrated in Figure 3 for ordinary numerical work, instead of for the dollars and cents work, shown in Figure 2, the primary shield 16 is rotated from the Figure 2 or 6 position through the Figure 7 position to the Figure 5 or 8 position, thus displaying the legend 100 instead of the legend 10 displayed in Figures 2 and 6. This rotation of the primary shield 16 is accomplished by rotating the cap 3, which bears upon the shield 16, with sufficient friction to effect this rotation. When the cap 3 has turned the primary shield 16 from the Figure 6 position as far as the Figure 7 position, the opening 20 which formerly displayed the central digit "3" now displays the left-hand digit "3," which appears upside down, this displaying being due to the fact that at this time the primary shield 16 rotates without rotating the secondary shield 8.

After passing beyond the Figure 7 position, moving in the direction of the arrow, a downwardly projecting lug 21 of the lip 19 catches the edge 22 of the lip 12, and causes the two primary shields to move together, the shield 16 driving the secondary shield 8 by the lug 21. The typist rotates the cap 3 to effect this turning until the primary shield 16 reaches the Figure 8 position, in which the upper legend 100 on the sheet 7 is displayed and in which the digit "3" displayed through the opening 20 is now in upright position. The parts remain in this position because a spring-pressed detent ball 23 in a hollow 24 of the body 2 seats itself slightly in a cut-away portion 25 of the cylindrical body 17 of the primary shield 16. The snapping of the ball, which forms a clicking detent, is a signal to the typist that the shield 16 is in its proper position. Each key-top, upon the lip 12 of the secondary shield 8, is provided with the appropriate digits "1," "2," "3," "4," "5," etc., according to the column the key is to be used for,—it being understood that the key illustrated in Figure 3 is the key for the short column, and consequently bears the legend "3" upon its secondary shield 8.

When all the keys shown in Figure 10 have had their caps 3 rotated to bring the shields to the Figure 11 position, all the keys are ready for use in positioning the carriage preparatory to typing ordinary numerical work.

In order to enable the key caps 3 to be rotated in either direction from the Figure 2 position, there is provided, in addition to the central digit "3" and the left-hand digit "3," of which the purpose has been described above, a right-hand digit "3," which is inverted like the left-hand digit "3," and which appears beneath the opening 20 if the key cap 3 is rotated to the right, as shown by the arrow in Figure 9, it appearing then under the opening 20.

To enable the secondary shield 8 to be picked up by the primary shield 16 to bring to the Figure 9 position the digit "3" now appearing therein, there is provided a lug 28 corresponding to the lug 21, but picking up the lip 12 by an edge 29 and carrying it around in the manner described above for the lug 21. The lugs 21 and 28 serve, respectively, to return the secondary shield 8 from the position it has been moved into by the other lug when it is desired to return from one key-setting to the previous key-setting.

In returning the parts from the Figure 5 or 8 position to the Figure 2 or 6 position, in a direction opposite to the arrows, the cap 3 only picks up the secondary shield 8 after it has been rotated to a considerable extent, because the lug 28, in Figure 8, does not strike against the edge 29 of the secondary shield 8 until the cap has been rotated to take up the lost-motion between them. This requires that in order to bring the parts back to the Figure 2 or Figure 6 position, the cap 3 and the primary shield 16 be rotated until a second opening 30 corresponding to the opening 25 engages the detent-ball 23, and then be rotated enough further to make up for the lost-motion in moving from the Figure 6 to the Figure 7 position, that is, it is rotated to the Figure 9 position. At this time the central digit "3" is concealed by the lip 19, but the typist can recognize the fact that the secondary shield 8 is in its proper position, because at this time a light detent-spring 26, forming a clicking detent, snaps into an opening 27 in the base 2. The typist then rotates the cap 3 in the opposite direction far enough to carry the primary shield to the Figure 6 position, thus displaying the central digit "3" through the opening 20.

To enable the detent 26 to thus engage the base 2, the detent is formed as an extension of one of the lugs 14, said lugs projecting into a space obtained by interposing the spacing washer 31 between the cup 9 and the base 2.

It will be noted that the present structure provides a device in which each key always displays the same digit to indicate which column the key belongs to, but the shifting of the digit, by the rotation of the secondary shield 8, uncovers either the front or back of the key face, provided by the sheet or disk 7, with the result that the typist is able at a glance, by looking at the key faces, and without stopping to read the denominational legends thereon, to recognize what system of pointing off the keys are set for. Thus, the keys shown herein have all the advantages of some of the keys with shiftable tops

now in use, and have the additional advantage that each key also bears, in its upright readable position, the legend showing the column it is to be used for in column-selecting.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination with a key-lever, of a key comprising a rotatable key-cap, a plate having a legend-bearing surface bearing two legends thereon, a rotatable member having a legend-bearing surface bearing upright and inverted legends thereon, and means operated by the key-cap for selectively displaying either of said two legends on the legend-bearing surface of said plate and for concomitantly rotating said member thereby to selectively display either said upright legend or said inverted legend in an upright position, so that all of the selectively-displayed legends may be read in upright positions.

2. The combination with a key-lever, of a key comprising a rotatable key-cap, a shield adapted to be rotated by the rotating cap, a second shield adapted to be rotated by the first shield, and a lost-motion connection between the two shields to enable the first shield to selectively cover and uncover legends upon the second shield.

3. The combination with a key-lever, of a key comprising a rotatable key-cap, a shield adapted to be rotated by the rotating cap, a second shield, lugs upon the first shield adapted to drive the second shield and so set as to provide lost motion before beginning to drive it, and a legend-bearing plate beneath the second shield adapted to have its legends selectively covered by the second shield, said legends adapted to be read with legends upon the second shield which are selectively covered by the first shield.

4. The combination with a key-lever, of a key comprising a rotatable key-cap, a plate having a legend-bearing surface bearing two legends thereon, a rotatable member having a legend-bearing surface bearing upright and inverted legends thereon, means operated by the key-cap for selectively displaying either of said two legends on the legend-bearing surface of said plate and for concomitantly rotating said member for selectively displaying either said upright legend or said inverted legend in an upright position, and a clicking detent to notify the typist when the legends are positioned for reading.

5. The combination with a key-lever, of a key comprising a rotatable key-cap, a shield adapted to be rotated by the rotating cap, a second shield adapted to be rotated by the first shield, a lost-motion connection between the two shields to enable the first shield to selectively cover and uncover legends upon the second shield, and a clicking detent adapted to notify the typist when the shields are in position for reading the legends.

6. The combination with a key-lever, of a legend-bearing surface forming part of a key upon the lever, an upright legend upon said surface, an inverted legend adjacent the upright legend, a shield for selectively displaying the legends, and means whereby the moving of the shield rotates said surface to turn the inverted legend upright.

7. The combination with a key-lever, of a legend-bearing surface, a shield member comprising a lip overlying part of the surface and devices for holding the shield member in position, a primary shield member overlying the first member and embracing it, a lip on said primary member adapted to selectively expose legends upon the first, and a lost-motion connection between said members.

8. The combination with a key-lever, of a legend-bearing surface fast thereto, a second legend-bearing surface rotatable upon the first to selectively obscure the legends thereon, and a shield comprising an opening, and rotatable upon the second surface to selectively obscure legends upon the second surface and concomitantly to expose other legends upon said second surface.

9. The combination with a key-lever, of a legend-bearing surface fast thereto, a second legend-bearing surface rotatable upon the first to selectively obscure the legends thereon, a shield comprising an opening, and rotatable upon the second surface to selectively obscure legends upon the second surface, and devices whereby further rotation of the shield rotates the second surface.

10. The combination with a key-lever, of a base upon said lever, a legend-bearing surface fast to the base and spaced therefrom, a secondary shield rotatable upon said surface to selectively display the legends thereon, and comprising a detent in the space adjacent the base, and engaging an opening in the base, and a primary shield adapted to selectively display legends upon the secondary shield.

11. The combination with a key-lever, of a base upon said lever, a legend-bearing surface fast to the base and spaced therefrom, a secondary shield rotatable upon said surface to selectively display the legends thereon, and comprising a detent in the space adjacent the base, and engaging an opening in the base, a primary shield adapted to selectively display legends upon the secondary shield, and lugs upon the primary shield adapted to engage the secondary shield with some lost motion to rotate it.

12. The combination with a key-lever, of

a base upon said lever, a legend-bearing surface fast to the base and spaced therefrom, a secondary shield rotatable upon said surface to selectively display the legends thereon, and comprising a detent in the space adjacent the base, and engaging an opening in the base, a primary shield adapted to selectively display legends upon the secondary shield, a lost-motion connection whereby the primary shield rotates the secondary shield, and a clicking detent for the primary shield.

13. The combination with a key-lever, of a base upon said lever, a legend-bearing surface fast to the base and spaced therefrom, a secondary shield rotatable upon said surface to selectively display the legends thereon, and comprising a detent in the space adjacent the base, and engaging an opening in the base, a primary shield adapted to selectively display legends upon the secondary shield, a lost-motion connection whereby the primary shield rotates the secondary shield, a clicking detent for the primary shield, and a detent holding the secondary shield while the primary shield is beind adjusted relatively thereto.

14. The combination with a key-lever, of a base upon said lever, a legend-bearing surface fast to the base and spaced therefrom, a secondary shield rotatable upon said surface to selectively display the legends thereon, and comprising a detent in the space adjacent the base, and engaging an opening in the base, a primary shield adapted to selectively display legends upon the secondary shield, and a cap adapted to rotate the primary shield, and comprising lugs adapted to be bent beneath the base to hold the shields and surface together.

15. The combination with a key-lever, of a base upon said lever, a legend-bearing surface fast to the base and spaced therefrom, a secondary shield rotatable upon said surface to selectively display the legends thereon, and comprising a detent in the space adjacent the base, and engaging an opening in the base, a primary shield adapted to selectively display legends upon the secondary shield, a lost-motion connection whereby the primary shield rotates the secondary shield, a clicking detent for the primary shield, and a cap adapted to rotate the primary shield, and comprising lugs adapted to be bent beneath the base to hold the shields and surface together.

16. The combination with a key-lever, of a base, a legend-bearing surface upon the base, a secondary shield comprising a lip and adapted to be rotated to selectively display the legends upon the surface, a primary shield, a lip upon said primary shield comprising an opening adapted to selectively display legends upon the first lip, and lugs upon the lip of the primary shield adapted to engage the lip of the secondary shield after some lost motion, and then rotate the secondary shield.

17. The combination with a key-lever, of a member having a legend-bearing surface, a shiftable secondary shield for selectively displaying the legends appearing on said member, said shield having a legend-bearing surface, and a shiftable primary shield for shifting the secondary shield and also shiftable relatively thereto for selectively displaying the legends appearing thereon.

CORNELIUS B. CORCORAN.

Witnesses:

EDITH B. LIBBEY,

CATHERINE A. NEWELL.